
A New Species of *Bourreria* (Ehretiaceae, Boraginales) from Costa Rica

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ABSTRACT. We describe *Bourreria grayumii* (Ehretiaceae) as new from Costa Rica, near the Nicaraguan border. It is illustrated, and a distribution map is provided. The new species may be closely related to *Bourreria huanita*, as both share schizocarpous fruits, an unusual and specialized character in *Bourreria*.

Key words: Boraginales, *Bourreria*, Costa Rica, Ehretiaceae.

Bourreria P. Browne comprises approximately 30 New World species and belongs to the Ehretiaceae of a more broadly circumscribed Boraginales (Boraginaceae s.l.), additionally including the subordinate taxa Boraginaceae s. str., Heliotropiaceae, Cordiaceae, and also Hydrophyllaceae and Lennoaceae (Thorne, 1983; Gottschling et al., 2001). In the course of examining specimens and preparing the taxonomic treatments of the borages for the *Manual de Plantas de Costa Rica* and for the *Flora Mesoamericana*, collections representing a previously undescribed taxon were discovered. Former authors assigned these collections to *Bourreria mollis* Standley (= *Bourreria oxyphylla* Standley), which is common in Mexico, Belize, and Guatemala (Nowicke, 1969; Gentry & Janos, 1974; Miller, 1988) and also occurs in Honduras, Panama, and Colombia. The present study shows the Nicaraguan and Costa Rican collections that have been treated as *B. mollis* (= *B. oxyphylla*) differ consistently in several morphological features and are best considered as the distinct new species below.

Bourreria grayumii Gottschling & J. S. Mill., sp. nov. TYPE: Costa Rica, Cantón de Upala, along Río Chimurria, vic. Colonia Puntarenas, ca. 11 km (by rd.) SE of Upala, 80–100 m, 10°49'N, 84°53'W, 17 Nov. 1988 (fl, fr), M. H. Grayum, G. Herrera & R. Evans 9048 (holotype, MO 4265358; isotypes, CR, F 2117346, MEXU, MO 4265359). Figures 1, 2.

Arbor vel frutex usque ad 12(–20) m altus. Lamina glabra, elliptica, 1.5–10.9 cm longa, (0.4–)0.8–4.3 cm lata, apice acuminata, basi acuta; folia petiolo ca. 7 mm longo,

glabro. Inflorescentia plerumque terminalis, thyrsoida. Flos fragrans; calyce (4–)5–7 mm longo, intus tomentosus; corolla alba, infundibuliformi, (10–)12–17 mm longa, 5-loba, tubo 7–10 mm longo, lobulis ovatis, 3–6 mm longis; staminibus 5, filamentis glabris, ad tubum corollae adnatis; stylo simplici, (4–)6–8 mm longo. Fructus immaturus succulentus, ca. 10 mm diam., maturitate schizocarpus.

Trees or shrubs, to 12(–20) m tall; bark light brown, rarely gray; branches glabrous; lenticels absent. Leaves alternate, the blade 1.5–10.9 × (0.4–)0.8–4.3 cm, elliptic to obovate, occasionally asymmetric, the apex usually acuminate or apiculate, sometimes acute, retuse, or emarginate, the base acute or cuneate, frequently asymmetric, sometimes decurrent, the texture coriaceous to membranaceous, the primary vein ± prominent, the secondary veins (4 to)5 to 7(to 9), the tertiary veins reticulate or rarely percurrent, occasionally inconspicuous, the upper surface glabrous, rarely with multicellular incrustations, the lower surface glabrous or with few trichomes on the veins; petiole 0.2–0.8(–1.2) cm long, slender, canaliculate on adaxial surface, glabrous or with few trichomes. Inflorescence (2–)3–5(–7) cm, terminal or sometimes axillary, comprising up to 10(to 15) flowers, but usually less, the branching sympodial, the branches slender or rarely robust, glabrous to varying tomentose, the bracts frequent, leafy, the bracteoles rare, if present small, lanceolate, velutinous. Flowers fragrant, the pedicels up to 3 mm, the buds widely obovoid; calyx (4–)5–7 mm long, campanulate or sometimes tubular, coriaceous, indurate and slightly striate in fruit, varying puberulent outside, varying tomentose at least at margin inside, the lobes 5, 1–3 mm long, acute or acuminate, usually regularly divided, but rarely irregularly (into 3+2 or 2+2+1) in fruit; corolla (10–)12–17 mm long, salverform, membranaceous, white, the tube 7–10 mm long, tubular or rarely funnel-shaped, usually glabrous on both surfaces, the lobes 5, 3–6 mm long, rounded or obtuse, papillose or with few strigose trichomes outside; stamens 5, included, the filaments (6–)7–9 mm long, completely adnate to the corolla tube, glabrous, the anthers 1(–2) mm long; ovary glabrous, the style (4–)6–8 mm long, includ-

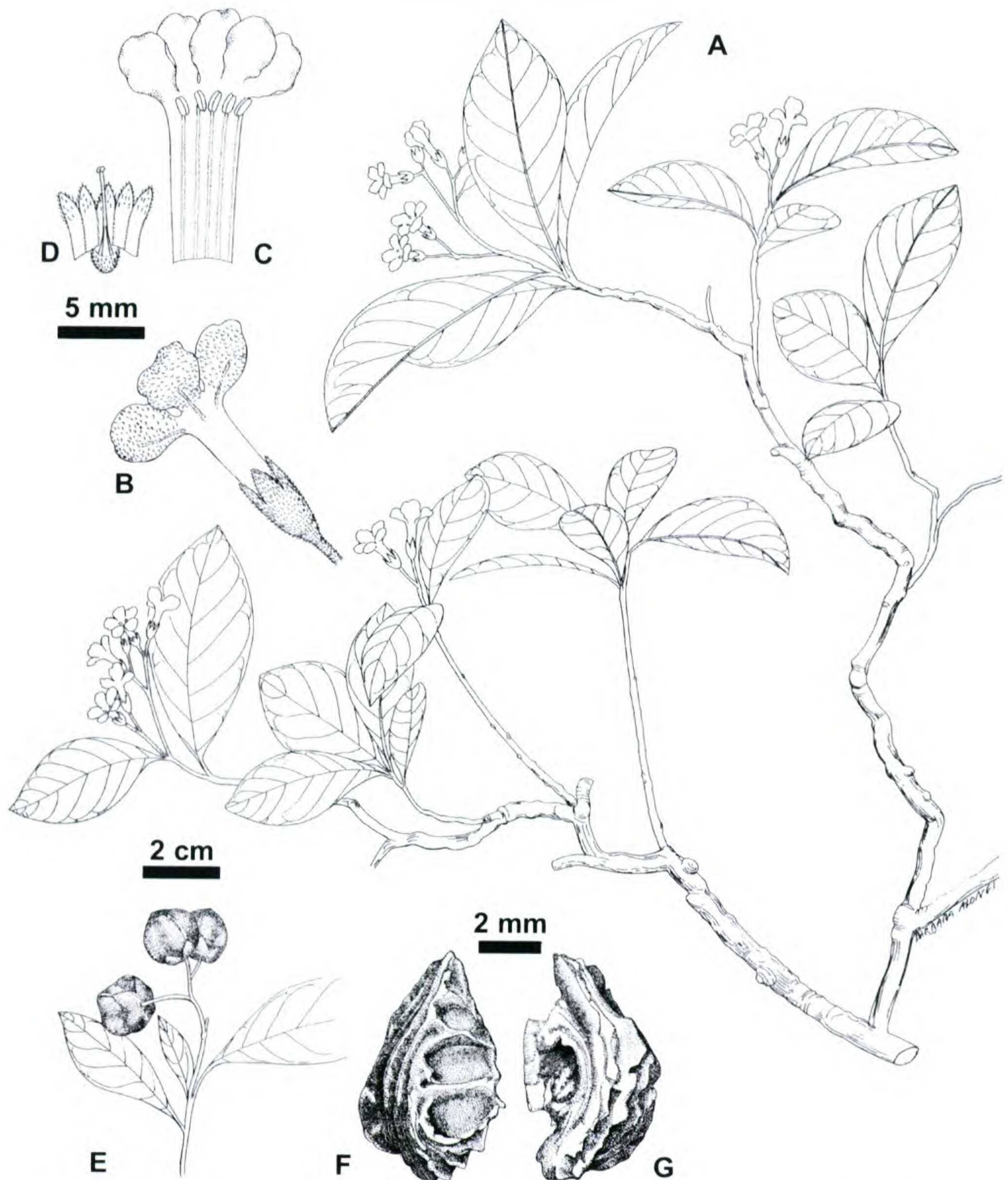


Figure 1. *Bourreria grayumii* Gottschling & J. S. Mill. —A. Flowering branch. —B. Flower (note the papillose outer surface of the corolla lobes and the strigose hairs on the outer surface of the corolla). —C. Open corolla with stamens (note that the filaments are entirely adnate to the corolla tube). —D. Open calyx with gynoecium. —E. Fruiting branch. —F, G. External surface of pyrenes showing overlapping lamellae. A and F, G from *Espinoza et al.* 213 (MO); B from *Martínez* 93 (MO); C, D from *Flores et al.* 46 (MO); E from *Grayum et al.* 9048 (MO).

ed, undivided, the stigma capitate, sometimes distinctively broader than the style; disc present. Immature fruits 9–14 × 10–15 × 9–14 mm, drupaceous, widely to depressed ovoid, ridged, the exocarp thin, the mesocarp scanty, the mature fruit schizocarpous; pyrenes 8–9 × 4 × 4–5 mm, each one quarter sphere in shape, the abaxial surface with 5 to 6 conspicuous lamellae.

Etymology. This species is named in honor of Michael H. Grayum (MO), who collected the type as well as many valuable plant specimens in Costa Rica and has contributed greatly to our understanding of the Costa Rican flora.

Distribution. *Bourreria grayumii* occurs in southern Nicaragua and northern Costa Rica, usu-



Figure 2. Distribution of *Bourreria grayumii* at the Nicaraguan–Costa Rican border.

ally at elevations of 40–100 m, but occasionally to 1100 m, and is sympatric with *B. costaricensis* (Standley) A. H. Gentry.

Notes. *Bourreria grayumii* has been considered closely related to *B. mollis* from the *Bourreria baccata* Rafinesque species complex comprising approximately four difficult to distinguish species [*B. baccata*, *B. mollis*, *B. polyneura* O. E. Schulz, and *B. virgata* (Swartz) G. Don]. They are similar in general morphological appearance and have some overlapping morphological features that are also shared by *B. grayumii* at first glance. Fruiting collections of *B. grayumii* show that the mature fruit is schizocarpous, and even its immature fruits have both a ridged surface and a somewhat four-angled shape. Schizocarpous fruits in *Bourreria* break into four separate mericarps at maturity, and each of them has a filament connecting the gynobase with its apex. This character appears to circumscribe a monophyletic species group (Gottschling, 2004) that occurs from Mexico to northern South America and was recognized as *Crematomia* by Miers (1869). *Bourreria grayumii* would be unique among those species in exhibiting stamen filaments completely adnate to the corolla tube.

Paratypes. NICARAGUA. **Río San Juan:** Sábalo, San Antonio, 1 km W of Sábalo, *P. P. Moreno* 26240 (MO, US). COSTA RICA. **Alajuela:** Guatuso, Cabaña, near Río Buena Vista, *Q. Jiménez, R. Quesada & R. Castro* 1133 (CR, MO); Los Chiles, Llanura de Guatuso, R.N.V.S. Caño Negro, San Antonio, *K. Flores et al.* 46 (CR, ENCB, MO), *K. Flores & K. Flores* 114 (ENCB, MO), *K. Martínez* 88 (CR, MO), *K. Martínez* 93 (CR, ENCB); Upala, Canalete, *Jimenez-Saa* 125 (F). **Guanacaste:** Parque Nacional Guanacaste, Cerro El Hacha, *R. Espinoza* 131 (CR, MO); Estación Maritza, *Espinoza et al.* 213 (CR, ENCB, MO).

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